Abstract

A functional unit in a digital system is provided with a rounding DOT product instruction, wherein a product of first pair of elements is combined with a product of second pair of elements, the combined product is rounded, and the final result is stored in a destination. Rounding is performed by adding a rounding value to form an intermediate result, and then shifting the intermediate result right. A combined result is rounded to a fixed length shorter than the combined product. The products are combined by either addition or subtraction. An overflow resulting from the combination or from rounding is not reported.